Nova Scotia

ANNUAL REPORT

for the fiscal year
ending March 31, 1990

Department of Lands and Forests

93-01394/

To His Honour

The Honourable Lloyd R. Crouse, P.C.
Lieutenant-Governor of Nova Scotia

May It Please Your Honour:

I have the honour to submit herewith the report of the Department of Lands and Forests for the fiscal year ended March 31, 1990.

Respectfully submitted,

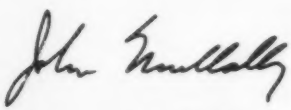
C.W. MacNeil, M.D.
MINISTER OF LANDS AND FORESTS

The Honourable C.W. MacNeil, M.D.
Minister of Lands and Forests
Halifax, Nova Scotia

Sir:

I have the honour of presenting the Report of the Department of Lands and Forests for the fiscal year ended March 31, 1990.

Respectfully submitted,



John Mullally
DEPUTY MINISTER

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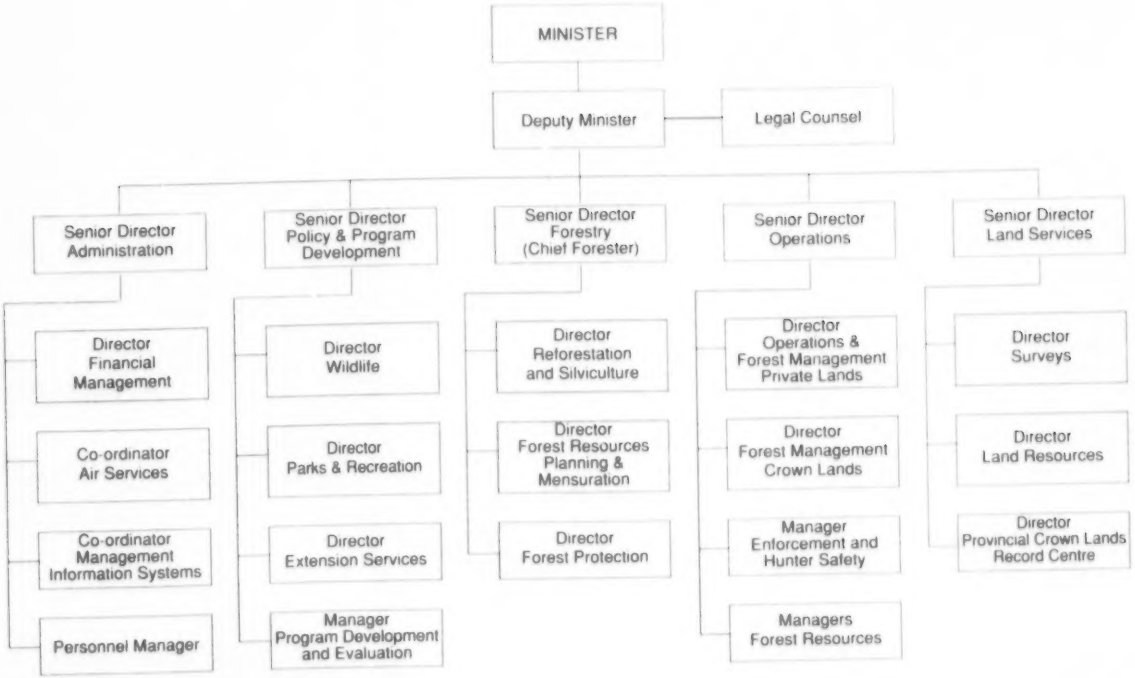

DEPARTMENTAL FUNCTION AND ORGANIZATION

DEPARTMENT OF LANDS AND FORESTS
P.O. Box 698
Halifax, Nova Scotia
B3J 2T9

MINISTER
Hon. C.W. MacNeil, M.D.
424-4037

DEPUTY MINISTER
John Mullally
424-4121

The Department of Lands and Forests was established by legislation enacted in 1926. The Department is charged with administering the Forest Act, the Crown Lands Act, the Wildlife Act, the Provincial Parks Act, and various other statutes, including the Forest Enhancement Act, the Beaches Preservation and Protection Act, the Land Titles Clarification Act, and the Scalers Act. From these it derives authority to manage Crown lands, to manage wildlife habitat, to provide a system of parks, and to manage and protect the forests, wildlife, and beaches. Inherent in the legislation and incumbent upon the Department are responsibilities pertaining to the productivity of the forests generally, the supply of forest products, the conservation of water, and the enhancement of recreational and scenic values.

Services are organized and delivered through five branches:

- Administration
- Policy and Program Development
- Forestry
- Operations
- Land Services

BOARDS AND COMMISSIONS

NOVA SCOTIA PRIMARY FOREST PRODUCTS MARKETING BOARD
Metropolitan Place
99 Wyse Road, Suite 470
Dartmouth, N.S.
B3A 4S5
(424-5456)

This board is responsible for administering the Primary Forest Products Marketing Act. The purpose is to regulate the marketing of primary forest products on behalf of producers and buyers in the province.

COMMISSIONER OF FOREST ENHANCEMENT
Box 1830
Truro, N.S.
B2N 5Z5
(893-7242)

The office of the Commissioner of Forest Enhancement was created under the Forest Enhancement Act based on recommendations found in the report of the Royal Commission on Forestry (1984).

ACTS ADMINISTERED BY THE DEPARTMENT OF LANDS AND FORESTS

1. Beaches
2. Beaches and Foreshores Act
3. Blueberry Associations Act
4. Bowater Mersey Agreement Act
5. Crown Lands Act
6. Forest Enhancement Act
7. Forests Act
8. Halifax Power and Pulp Company Limited Agreement Act
9. Indian Lands Act
10. Kedgemakooge National Park Act
11. Land Holdings Disclosure Act
12. Land Titles Clarification Act
13. Land Surveyors Act
14. Parks Development Act
15. Provincial Parks Act
16. Primary Forest Products Marketing Act
17. Scalers Act
18. Scott Maritimes Pulp Limited Agreement (1965) Act
19. Stora Forest Industries Limited Agreement Act
20. Wildlife Act
21. Trails Act

ADMINISTRATION BRANCH

The Administration Branch is responsible for financial management, personnel administration, and air services, as well as for implementing administrative policies and procedures on behalf of the minister and deputy minister. It is composed of four divisions: Financial Management, Personnel Administration, Air Services, and Management Information Systems.

FINANCIAL MANAGEMENT

The Financial Management Division develops financial systems and provides financial information to all branches of the Department and control agencies of government. The division assists in the preparation of expenditure estimates, prepares the revenue budget, processes departmental accounts payable, administers the collection of revenue, and is responsible for the distribution and sale of game and fishing licenses.

Expenditures and Revenues 1989–90

ORDINARY EXPENDITURES

Administration Branch

Office of Minister and Deputy	$ 307,119	
Administrative Services	300,772	
Financial Management	1,009,434	
Game License	466,372	
Personnel and Payroll	193,494	
Legal Services	96,310	
Grants and Assistance	156,100	
Air Services	2,005,504	
Forest Operators Assistance	900,000	
Office of the Commissioner of Forest Enhancement	151,213	
Advisory Councils	85,366	$ 5,671,684

Policy and Program Development Branch

Branch Administration	$ 239,999	
Marketing and Strategic Studies	175,058	
Extension Services	963,445	
Urban Forestry	23,227	
Wildlife Management Planning	879,800	
Fish Rearing Station/Park	146,368	
Wildlife Parks	758,217	$ 3,186,114

Forestry Branch

Branch Administration	$ 971,592	
Forest Nurseries	2,643,847	
Tree Breeding	514,952	
Insects and Pathogens	72,626	
Resource Management Planning and Coordination	433,861	
Forest Inventory	1,151,924	
Timber Loan Board	45,976	
Scaling	55,175	
Fire Protection	810,382	
Mechanical Equipment	688,784	
Support Services	272,751	
Radio Communications	948,851	$ 8,610,721

Operations Branch

Branch Administration	$ 690,524	
Silviculture Agreements	288,518	
Administration - Field Services	3,144,013	
Forest Protection	2,453,285	
Enforcement and Hunter Safety	1,210,480	
Parks Maintenance and Operation	1,567,014	
Extension and Training	100	
Private Lands Forest Management	1,407,345	
Wildlife Management	799,275	
Crown Land Forest Management	1,986,865	
Properties, Vehicles and Equipment	1,056,939	$14,604,358

Land Services Branch

Branch Administration	$ 109,095	
Land Acquisition	512,335	
Surveys	1,368,524	
Provincial Crown Lands Record Centre	533,643	$ 2,523,597

Federal/Provincial Forestry Agreements[1]

Forest Resource Development Agreement	$ 2,480,043	
Cooperation Agreement for Forestry Development	$11,821,211	$14,301,254

TOTAL ORDINARY EXPENDITURES	$48,897,728

[1] Funds budgeted in the Department of Industry, Trade and Technology

RECOVERIES

Education and Information	$ 5,102	
Fire Protection	4,761	
Radio Communication	98,173	
Miscellaneous	52	
TOTAL RECOVERIES		$108,088

CAPITAL EXPENDITURES

Furniture and Equipment

Office	$ 44,953	
Firefighting Equipment	205,902	
Forestry Equipment	529,320	$ 780,175

Other

Parks and Recreation	$ 3,223,573	
Forest Research	709,436	
Operational Silviculture	230,168	
Crown Land Access Roads	234,910	
Land Acquisition	2,188,177	
Special Warrant	30,500,000	
Surveys	1,717,839	$39,804,103

Public Works and Special Projects		
Depot Buildings		$ 279,356
Federal/Provincial Forestry Agreements[1]		
Forest Resource Development Agreement	1,423,888	
Cooperation Agreement for Forest Development	3,003,608	$4,427,496
TOTAL CAPITAL EXPENDITURES		$45,291,130
REVENUE		
Admission Fees — Parks	$ 339,358	
Fines and Forfeitures	151,303	
Game and Fish Licenses	2,863,699	
Leases and Grants	241,801	
Nursery — Sale of Trees	1,771,190	
Selective Cutting	16,742	
Timber and Firewood Licenses	1,952,684	
Miscellaneous	189,903	
TOTAL REVENUE		$7,526,680

[1] Funds budgeted in the Department of Industry, Trade and Technology

PERSONNEL ADMINISTRATION

The Personnel Administration Division is responsible for personnel and payroll matters.

The number of civil service positions as of March 31, 1990, was 670. During the year, between 150 and 1,500 casual employees were on staff to assist in full-time, seasonal, or student internship programs.

This year saw the retirement of Paul R. Pangborne, Photographic Technician at Dartmouth; Vernon M. Magee and Robert M. Gunn, Forestry Technicians at McLellans Brook; Richard M. Bulmer, Special Advisor to the Senior Director of Policy and Program Development at Truro; Mary B. MacDonald, Secretary to the Director of Surveys at Dartmouth; and J. Vernon Frizzell, Maintenance Worker at the Middle Musquodoboit Forest Nursery.

The Department was saddened by the death of Harold Morrison in Whycocomagh and Richard M. Bulmer in Truro, both in December 1989. Mr. Bulmer had retired in July 1989.

AIR SERVICES

The Department maintains three fixed-wing aircraft and four helicopters to provide service to government departments and agencies. Primary functions include medical evacuations, ground search and rescue, forest fire detection and suppression, provincial emergency situations, and resource development and management.

During the year a total of 341 hours was flown on fire patrol and water bombing missions. The Air Service was called on by the Emergency Measures Organization to carry out 32 searches (totalling 89 hours) for missing persons. Twenty-three air ambulance missions (totalling almost 100 hours) were also performed.

MANAGEMENT INFORMATION SYSTEMS

The Department installed $50,000 in new microcomputer hardware. Additional systems including Portable Data Recorders were purchased under the Federal/Provincial forestry agreement. The Forest Management Information System became fully operational. System development continued on the GIS project. Desk top publishing technology was installed in Extension Division. Classroom, CBT, and other forms of training were provided to departmental staff in FOCUS/FOCALC, WordPerfect, DOS, and Introduction to Microcomputers. An update on the Long Range Systems Plan was begun.

POLICY AND PROGRAM DEVELOPMENT BRANCH

The Policy and Program Development Branch is responsible for developing, evaluating, and recommending policy and program alternatives in forest management, wildlife management, and parks and recreation. The branch is also responsible for information and education functions through its Extension Services Division. The task of conducting marketing studies and encouraging forest industry development also falls to this branch.

Policy and Program Development consists of four divisions: Wildlife, Parks and Recreation, Extension Services, and Program Development and Evaluation.

This Branch also coordinates, monitors, and evaluates the implementation of the Cooperation Agreement for Forestry Development. It coordinates the preparation and updating of the Departmental Strategic Plan and represents the Department on the government-wide strategic planning process.

CANADA/NOVA SCOTIA FOREST RESOURCE DEVELOPMENT AGREEMENT AND COOPERATION AGREEMENT FOR FORESTRY DEVELOPMENT

The Forest Resource Development Agreement (FRDA) expired March 31, 1989, after operating since 1982.

Over the span of seven years, more than 70,000 person-weeks of employment were generated. A total of 221 310 hectares were treated with a wide variety of silviculture techniques, leaving Nova Scotia with healthier, more productive forest land. The FRDA exceeded its objective of providing a treatment level aimed at boosting (if maintained throughout the rotation) the annual allowable cut for softwoods from 2.5 to 3.6 million m^3 which will ensure an adequate long-term wood supply.

A small budget was available for 1989–90 to complete commitments for some programs. Projects which were continued included a) forest management on public lands and managed woodlots, b) provincial research, c) Agreement administration and management, d) public information and education, and e) nursery construction.

The Province continued to support the forest management programs and the Group Venture program with its own funds as negotiations for a successor agreement were pursued. On December 15, 1989, Canada and Nova Scotia signed a two-year Cooperation Agreement for Forestry

Development 1989 – 1991 (CAFD). This is a subsidiary agreement to the Canada/Nova Scotia Economic and Regional Development Agreement (ERDA) of 1984 and provided for $24,750,000 from Canada and $20,250,000 from Nova Scotia to continue five major programs: Forest Management, $32,930,000; Group Management, $4,050,000; Applied Research and Development, $1,740,000; Agreement Implementation, $3,710,000; and Communication/Education/Training, $2,570,000.

WILDLIFE DIVISION

The Wildlife Division appraises and evaluates the status and population trends of wildlife, assesses habitat quality and needs for various species, and recommends management strategies including seasons and bag limits for game species and furbearers.

Non-game

Non-game activities concentrated on studies of wildlife species protected by provincial statutes and on monitoring non-game wildlife habitats.

Bald eagle nest productivity studies indicated that this year, following completion of the six-year eagle translocation program, 122 nests produced 137 young eagles. This level of production suggests that the Nova Scotia breeding population has been unaffected by the transferral of young birds to the United States. As a result of the international program, two female eagles from Nova Scotia mated with males from elsewhere and produced young eagles in the first wild nests to be found in Massachusetts in more than 80 years.

Other non-game activities included studies of cormorant food habits and salmon smolt predation rates in cooperation with the Department of Fisheries and Oceans; island habitat studies and wintering eagle and hawk counts. Twenty peregrine falcons were released as part of a project with the Canadian Wildlife Service to re-introduce these endangered birds into the Bay of Fundy region.

Staff processed 242 wildlife investigation report forms.

The Non-game section represented the Province on the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and reviewed several species status reports. This section also participated in the Convention on International Trade in Endangered Species (CITES).

Big Game

Deer

An open winter and a deer herd more closely balanced to the habitat resulted in a slowing of the downward trend in spring deer herd index surveys.

With the 1989 deer hunting season a new program to determine official kill figures was inaugurated. Mandatory registration of deer taken by licensed hunters provides a known minimum harvest figure. In future, this figure (deer registered) will be the official harvest figure on which trends in harvest and hunter success rates will be based. The program also provides a base for the collection of representative biological data from individual deer.

The following table gives the registered deer kill by county. This is a known minimum figure and cannot be compared to any previous kill figures for trend information.

Registered deer harvest 1989 season.

Annapolis	1,626	Kings	1,476
Antigonish	654	Lunenburg	2,542
Cape Breton	1,336	Pictou	1,679
Colchester	2,055	Queens	1,397
Cumberland	1,989	Richmond	1,455
Digby	852	Shelburne	1,265
Guysborough	1,096	Yarmouth	1,386
Halifax	1,517	Victoria	765
Hants	2,191		
Inverness	1,947	PROVINCE	27,228

Moose

The 1989 moose season for 200 licensed hunters was held on the Cape Breton Highlands in October. Licensed hunters registered 168 moose, of which 137 were males and 31 were females.

Following the regular moose hunt, persons recognized by any of the three groups representing the Native people of Nova Scotia hunted moose on the Highlands and reported a harvest of 55 moose. Biological data obtained from 43 of those moose indicated 26 males and 17 females.

The total legal harvest in 1989 was 223 moose. The sex ratio of the 211 sexed moose was 77 per cent male. Mean ages of aged moose were 3.09 years for males and 2.61 years for females.

Bear

For the second year a separate two-week bear season was held in September. Some 146 resident and 25 non-resident bear hunting licenses were sold. Report card returns suggest a harvest of 36 bears.

Additionally 108 bear snaring licenses were sold to qualified harvesters for the two-week snaring season starting October 16. Snaring license holder returns indicated a harvest of 57 bears.

1989 Bear Harvest Calculated for Each County

Annapolis	18	Kings	3
Antigonish	6	Lunenburg	11
Cape Breton	-	Pictou	9
Colchester	2	Queens	2
Cumberland	9	Richmond	-
Digby	2	Shelburne	-
Guysborough	8	Yarmouth	19
Halifax	4	Victoria	-
Hants	-		
Inverness	-	PROVINCE	93

Furbearers

The sale of fur harvester licenses continued to decrease, with the 1989–90 total of 2,241 licenses being 28 per cent below the 1988–89 sale. A continuing slide in prices for most fur species is responsible. A summary of harvest over a period of years is shown in Table 4.

Humane trapping legislation based on the standards recommended by the Fur Institute of Canada was enacted. Fisher and lynx seasons remained closed and their populations continued to be monitored. Fur harvesters were required to turn in all bobcat carcasses and otter heads as the status of these two animals continues to be monitored.

The reporting system for fur harvesters was updated with the addition of a request for a subjective evaluation of populations of snowshoe hare, fisher, bobcat, coyote, and otter within each trapper's territory. Results will be compared in subsequent years in an attempt to document population changes.

The coyote winter tracking study continued and a spring scat analysis was undertaken.

An additional 56 students qualified under the mandatory fur harvester education program, bringing the total number of graduates to 388.

Upland Game

Resident small game license sales went from 26,062 in 1988–89 to 28,182 in 1989–90. A report card was added to the small game license to replace the mail-out upland game survey which had previously been used to collect kill statistics. The calculated kill for snowshoe hare, ruffed grouse, and ring-necked pheasants is reported in Table 5. Snowshoe hare harvests were down slightly while pheasants were up somewhat and grouse were up by over 70 per cent.

The pheasant cock crowing census showed some general increase in pheasant populations throughout most of the province, with Kings and western Hants counties remaining the best areas.

The new mechanisms for measuring the snowshoe hare population were begun this year. All fur harvesters are required to report on the abundance of that species on their returned fur license. In addition, hare pellet plots have been added into the annual deer pellet plot inventories.

Winter population indices for Hungarian partridge remained low and the season remained closed.

Wetlands and Waterfowl

Woodcock singing ground surveys indicated that the average number of singing males heard per comparable survey route was 3.3 in 1989; it was 3.0 in 1988.

The North American Waterfowl Management Plan calls for two joint ventures involving the Maritimes, the Black Duck Joint Venture and the Eastern Habitat Joint Venture. For the latter, the Department has developed a $4 million, five-year cooperative program, involving partnerships with Environment Canada, Habitat Canada, Ducks Unlimited, and the United States. Wetlands acquisition, development, enhancement, stewardship, research, and evaluation are all parts of the program.

Results of the experimental nutrient enrichment study on the Tobeatic Wildlife Management Area were presented at the International

Black Duck Symposium. Monitoring of the study unit indicated (after three years without nutrient additions) that invertebrate biomass was still high enough to support much higher than normal waterfowl brood densities.

Nutrient enrichment of acidified wetlands will be further studied at the Institute of Estuarine Research, Acadia University, under cooperative sponsorship of Ducks Unlimited, Habitat Canada, Environment Canada, and the Province of Nova Scotia.

Monitoring of Crown-owned wetlands, under cooperative management with Ducks Unlimited in Digby and Yarmouth Counties, was conducted to determine environmental response to water drawdown on relatively sterile wetland systems.

Logistical support and technical assistance was given to Dalhousie University for a study relating to heavy metals, environmental contaminants, and waterfowl.

Logistical and technical assistance was given to Acadia University in a cooperative study to examine the importance of lead shot in the environment and ingested by waterfowl. Blood samples taken from black ducks at Sullivan's Pond in Dartmouth contained a high degree of lead. The lake showed a high degree of environmental lead (not lead shot) in the sediments.

Over the past 15 to 20 years black ducks have become increasingly associated with urban areas. As this association may be detrimental to the birds, the Department monitored black duck populations in the metro area throughout the year.

Correlations between cold Decembers and winter populations of black ducks were borne out again. This year (winter 1989–90) was the coldest on record, and the wintering population of black ducks at the Martinique Study Unit was the smallest on record.

Under the three party agreement between Wildlife Habitat Canada, Ducks Unlimited, and the government of Nova Scotia, 60 acres of wetlands were acquired at Halfway River in Cumberland County and 256 acres of salt marsh were acquired under the Eastern Habitat Joint Venture First Step Project.

During the 1988–89 year, 2,074 birds were banded.

Wildlife Habitat

Promotion and development of the 1989 Forest/Wildlife Guidelines and Standards for Nova Scotia were the primary activities of the habitat program this year. Presentations were given to industry, government, and private agencies to explain the intent of the guidelines and to work out procedures for their implementation. Research began into the effects of silviculture (primarily planting) on wildlife use of forests to provide better information for forest management. Initial attempts were made to analyze nine years of forest/wildlife inventory information and to plan the input of data to the Department's GIS.

Together with industry and private interests, participation in the St. Mary's River Project continued to develop operational techniques for forestry to protect fish and wildlife habitat.

Fish Rearing Station

During the spring of 1989, the fish rearing station at Kelly Lake, Halifax County, stocked 75,000 yearling brook trout and 10,000 yearling rainbow trout. The fish were trucked and released by the Department of Fisheries (with assistance from Lands and Forests) as part of an urban recreational fisheries program.

Kelly Lake was also stocked and provided an intensive fishery of 814 successful fishermen days. A creel census was maintained to record catch rates for various strains and stocking schedules.

A small overnight and day-use area serviced by the staff accommodated 595 overnight camping units.

A total of 75,000 fingerling brook trout and 10,000 rainbow trout were received from the Department of Fisheries for rearing through the winter and spring.

Provincial Wildlife Parks

The Provincial Wildlife Park at Shubenacadie attracted an estimated 330,000 visitors.

New bobcat and lynx enclosures were constructed and some changes were made to the Park's road/trail system.

This year for the first time, the N.S. Museum held two lectures at the park. We hope to continue this program in the future as it was well received by the public.

During the year 247 woodducks were reared and released in the province through Ducks Unlimited. This program has wide public support and receives media coverage periodically. During last spring and early summer 630 ring-necked pheasants were hatched and released in the province through private individuals and wildlife associations.

Two Rivers Wildlife Park
Upper Clements Wildlife Park

The Two Rivers Wildlife Park attracted approximately 80,000 visitors while the Upper Clements Wildlife Park had nearly 70,000 visitors.

Eagle enclosures were constructed at both parks and proved popular with the public.

PARKS AND RECREATION DIVISION

The Provincial Parks System is administered by the Parks and Recreation Division in Debert, and by the Operations Branch from its eight subdivisions and 21 district offices. The Parks and Recreation Division is responsible for planning the park system and its individual parks, including site investigations, park management plans, and public inquiries. Parks Division also administers capital budget for park development, oversees the implementation of capital projects, prepares standards and procedures for development and operation of parks, and under special circumstances, directly manages capital construction. The Operations Branch is responsible for park maintenance, operation, policing, and, under guidance from Parks Division, most capital construction.

The parks provide a variety of quality recreational opportunities, preserve important natural environments and scenic landscapes, increase public awareness and appreciation of our rich natural and cultural heritage, and provide improved amenities for the travelling public.

In 1989, the park system comprised 121 parks, including 21 campgrounds and 95 day-use and five wildlife/historic parks, encompassing 22,060 acres (8 931 ha). In addition, the Department administered 157 park reserve properties, totalling 31,689 acres (12 830 ha).

An estimated 135,475 persons stayed 46,197 party nights in the provincial campgrounds, an increase of 7 per cent from the previous year.

Legislation and Regulations

In 1989–90, regulations for the new Parks Act, Trails Act, and revised Beaches Preservation and Protection Act were adopted. These new regulations, along with their associated legislation, will ensure the maintenance and expansion of our park system to meet the outdoor recreation and heritage protection needs of Nova Scotians well into the 21st century.

Park Planning and Development Projects

The budget for planning, development, and administration was $3,224,000, of which $1,922,800 was directed to capital projects. This funding resulted in planning and development work on a number of park sites, including Melmerby Beach, Dollar Lake, Sandy Bay, Ellenwood Lake, Blomidon, Rissers Beach, Fox Harbour, and Dominion Beach.

The Department coordinated a cooperative interpretive program entitled "Parks are for People," which featured staff, representatives from other government agencies, and individuals from various interest groups. The program offered 28 events in provincial parks throughout the province.

Information on the park system continued to be circulated through tourist bureaus and Department offices. An attractive colour brochure featuring the provincial parks system as well as folders on Ellenwood Lake and Taylor Head parks were published and distributed.

Cabinet approved a lease agreement between the Province and a local interest group to convert a nine-mile section of the former Liverpool to Yarmouth rail line in Queens County to a recreational trail. The project will be undertaken as a pilot project under the new Trails Act.

Canadian Heritage Rivers Program

Participation in the Canadian Heritage Rivers Program continued. Following a systematic study of 45 Nova Scotia rivers and a more detailed assessment of seven rivers that were considered to have greatest potential as possible future heritage rivers, the Minister of Lands and Forests announced that three rivers — the Margaree, the St. Marys and the Shelburne — would be considered for nomination to the program, subject to public consultation.

As the Margaree River rated highest in the study process, a priority was placed on moving this river forward for nomination. A citizens' advisory committee, composed of residents of the Margaree area, was appointed by the Minister to recommend whether the river should be nominated as a Canadian Heritage River.

Park Land Acquisition

During 1989 several small properties were acquired. The most notable was at Elderbank, Halifax County, which was acquired for the purpose of developing a canoe launch on the Musquodoboit River.

EXTENSION SERVICES DIVISION

The Extension Services Division coordinates the communication, education, and information efforts of the Department.

The Division is divided into two subdivisions: Support and Liaison. Support is the creative arm and is responsible for planning, producing, and distributing extension tools. Liaison is the delivery arm of Extension, responsible for planning extension programs.

Support

During the year 2,030 written requests were answered with some 15,000 pieces of literature. Numerous telephone and in-person requests were also filled. Staff handled 449 film and video requests.

Department staff showed 16mm films to 16,182 students and 3,357 adults in 385 sessions; several hundred students were audiences at the Musquodoboit Valley Complex.

An exhibit promoting Nova Scotia's new Forestry/Wildlife Guidelines and Standards was developed and circulated to the Nova Scotia Forestry Exhibition and many of the province's agricultural fairs. Other exhibits dealing with parks, beaches and conservation officers were booked for special events.

New waterfowl identification signs were produced for the Provincial Wildlife Park at Shubenacadie as part of a two-year sign renewal project. A review of display materials at the Creighton Forest Environment Centre was initiated.

A series of lecture slides on bridge building was prepared, and a

slide show, "The Margaree River — A Candidate Canadian Heritage River," was produced to explain and promote the idea of nominating the Margaree as a Canadian Heritage River. A training video on proper multipot planting technique was shot and edited.

Advertising consisted of a modest wildfire prevention campaign (newspaper and radio) and occasional print ads dealing with the private land forestry program, Department publications, piping plovers, and hunting topics.

The subdivision continued to publish the quarterly *Conservation* and the bimonthly *Forest Times*, which serve 35,000 people in a total mailing of 172,000 copies a year.

Other publications included the *Forest/Wildlife Guidelines and Standards for Nova Scotia, Trees of Nova Scotia* (revision reprinting), *Nova Scotia Provincial Parks* and *Nova Scotia Wildlife Parks*. Text and illustrations were finalized for *Canada's Forest Heritage*, a cooperative project under the Canadian Council of Forest Ministers. A Grade 5 and 6 teacher guide and lesson plan was developed for the "Treelore" video piloting in 1990–91.

Funding assistance was given to the N.S. Forestry Exhibition '89 and to the N.S. Forestry Association. The latter launched Project Learning Tree at a facilitators' workshop in February.

On September 15 the Musquodoboit Valley Forest Nursery and Education Complex was officially opened. Progress on the education component included developing a forest ecology self-guided trail, clearing an arboretum site, erecting signage, and developing a series of teachers' guides. By year-end the Complex had served nearly 2,000 visitors. In addition, we offered two successful summer "Forest Day Camps" for local children, and in December held the first annual "Festival of Trees," a family event that attracted over 700 people.

Liaison

Extension specialists continued to initiate projects and provide assistance in implementing programs identified in the annual extension plans.

Technical assistance was provided to Christmas tree growers and graders through field days, courses, and demonstrations. Two field days featuring small woodlot equipment and silviculture treatments were held.

Presentations were made to promote Forest/Wildlife Guidelines to companies, contractors, and forest workers throughout the province.

A home study course *Wildlife on Your Woodlot* was completed and a manual *Merchantable Thinning (Softwoods)* was produced.

Four brochures were prepared. They are *Provincial Parks, Wildlife Parks, A Guide to Measuring Stacked Firewood,* and *Victoria Park Interpretive Walk.*

Park projects, including shows, exhibitions, staff training seminars, and interpretive programs, were coordinated.

Liaison staff offered planning or technical assistance to a number of programs and events such as Silvilog '90, Woodlot Owner of the Year Award, and the Forest Regional Industrial Training Committee (RITC).

Five Herbicide Information Seminars/Meetings were held throughout the province and an extension workshop was conducted for 25 Department field staff.

A provincial Arbor Day program was coordinated for Grade 6 students and numerous presentations were made to school and youth groups.

The Farm Woodlot Management course was again offered to NSAC students.

PROGRAM DEVELOPMENT AND EVALUATION

Staff supported the development and coordination of policies and programs with particular emphasis on forest management and market and industrial development.

Staff provided support for the coordination and administration of projects under the federal/provincial forestry agreements and participated in negotiations pertaining to the Cooperation Agreement for Forestry Development.

Forest Products Development

Eleven companies opened new mills or underwent major development:

Peter Christiano	New Moulder & Dry Kiln
Jerry Hilton	New Oil & Wood Fired Dry Kiln
Middleton Cash & Carry	New D.H. Dry Kiln
Gordon Pineo	New Cir Portable Mill
Ron Woodbury	Homemade Bandmill
Maurice Bruhm	Circular Hydraulic Mill
Cleve Crossley	Bandmill
Lian Hettama	Bandmill
Weymouth Custom Wood-workers	New Moulder
Atlantic Arch Rib	New Laminated Beam & Truss Plant & Dry Kiln
Robert Jackson	New Pole Peeler

Two companies ceased operations:

Minas Basin Pulp & Power	Sawmill
Keith H. Stevens	Sawmill

Staff conducted sawmill recovery studies on eight sawmills. A lumber size study was done on six of these eight sawmills and two others.

FORESTRY BRANCH

This branch is responsible for an ongoing forest inventory, forest research, tree breeding, nursery operations, and forest protection. The branch consists of three divisions: Reforestation and Silviculture, Forest Resources Planning and Mensuration, and Forest Protection.

REFORESTATION AND SILVICULTURE

Nursery Operation

Nursery staff has the responsibility of operating facilities, growing seedlings, allocating planting stock equitably, coordinating cone crop surveys and collections, and initiating or monitoring forest tree seedling research projects.

Tree distribution by nursery and user agency in 1989 was as follows:

Nursery	Number of Trees Shipped
Lawrencetown	3,098,018
Strathlorne	10,891,938
Wittenburg	2,412,939
Middle Musquodoboit	0
Other (purchased)	500,000
	16,902,895

User Agency	Number of Trees Planted
Crown	580,848
Large landowner	5,991,828
Small private FRDA	9,699,879
Small private (non FRDA)	553,510
Other	76,830
Total	16,902,895

Of the trees planted by large landowners 3,122,250 were highland white spruce. Of the trees planted, 76,830 were planted by Boy Scout organizations.

In 1989 a poor cone crop was experienced throughout Nova Scotia and no cones were collected. A total of 340 kg of Norway spruce seed was purchased from CSSR and Poland.

Construction of a new forest nursery located at Middle Musquodoboit was completed. The initial greenhouse crop was seeded in May 1989.

Plantation tours and a short course on stock quality were carried out in an effort to establish better understanding by field personnel with regard to seedling quality, diseases and growth.

Tree Breeding

The Tree Breeding Section is responsible for coordinating the overall program of the Tree Improvement Working Group (TIWG) and for fulfilling the Department's operational commitment to the effort. During this year, J.D. Irving Ltd. became a member of the Working Group, sharing the work effort with the Department and three other industrial organizations. Forestry Canada continues to provide strategic and technical advice.

Orchard expansion was restricted to fill planting in existing grafted orchards and to minor expansion of white and Norway spruce by Scott Worldwide. In total, orchards of TIWG members expanded by 10.4 acres (4.2 ha). Black spruce seedling orchards for the Department, Scott Worldwide and Stora Forest Industries were grown in the greenhouse and overwintered for planting in the spring of 1990. The Department's black spruce orchard will be planted on vacant bare root fields at the Lawrencetown Nursery.

At the Department's orchard site in Debert, approximately 5,000 feet (1 525 m) of access roads were built, 28 acres (11.3 ha) of cutover were stumped for future development, and vehicle access was improved in approximately 6 acres (2.4 ha) of existing white spruce orchards. Cone harvests in the oldest 2.5 acres (1 ha) of white pine orchard resulted in 38.5 bushels (13.9 hectolitres) of cones. These cones yielded 28.6 lbs (13 kg) of improved seed.

The TIWG's last series of black spruce family tests were overwintered at the Tree Breeding Centre for planting in the spring of 1990.

Despite the relatively poor flower crop, further progress was made in breeding red and white spruce.

Open-pollinated cones were collected from 37 clones in the Department's white pine orchard. This work will continue in future years so that tests can be established and this orchard rogued.

The Department hosted the Second Annual Maritime Seed Orchard Manager's Workshop at Truro in October.

Staff conducted a number of tours at the Tree Breeding Centre for groups ranging from Tree Improvement specialists to local elementary school classes.

In October, an archaeological find of major international importance was made on the Tree Breeding Centre's property as a result of land clearing operations. Field work conducted by the Nova Scotia Museum and Saint Mary's University indicates that these sites are of Palaeo-Indian origin. Being over 10,000 years old, they are the earliest known evidence of human habitation in north-eastern North America. Staff at the Centre are working with the Museum to ensure that our activities do not damage this vitally important cultural resource. We are hopeful that both activities can continue to co-exist.

Entomological Services

The 23 Pest Detection Officers submitted 340 insect and disease samples, and assessed 30 plantations in 1989. Insects and pathogens causing problems were oak leafroller, oak leafshredder, gypsy moth, spruce beetle, sirococcus canker, seedling debarking weevil, spruce budmoths, Dutch elm disease, and wind damage.

Surveys were conducted for spruce budworm, hemlock looper, balsam gall midge, balsam twig aphid, whitemarked tussock moth, and gypsy moth. Twenty light traps were used to monitor photopositive forest insects.

Forest Research

Eight permanent sample plots (PSPs) were established in natural and planted stands at eight locations, bringing the total number of PSPs established by Forest Research staff to nearly 500. Information from the PSPs is used to determine the effect of various management operations

on timber production and/or natural regeneration. Ninety-nine permanent sample plots were remeasured. The effect of cleaning was evaluated in 53 stands treated between 1966-1983. Results from the PSP measurements will be used to update growth and yield and wood supply models and to provide information for development of a similar model for hardwood.

Five reforestation trials were established 1) to determine the species, stock types, and stock ages best adapted to specific sites in Nova Scotia, 2) to determine the potential of fall planting on the highland areas, 3) to determine the impact of poor planting techniques on the growth and survival of newly established plantations, and 4) to evaluate in conjunction with the Nova Scotia Research Foundation the effect of mycorrhizae on planted seedlings. In addition 12 experimental softwood plantations and reforestation projects were remeasured.

A uniform shelterwood and patch seed tree trial was established in a natural red spruce stand to determine cost-effective ways of establishing natural regeneration. In addition, 232 regeneration plots in previously established experiments were remeasured to determine the success of shelterwood treatments in enhancing the establishment and performance of natural regeneration.

Five trials were established in a continuing effort to evaluate which herbicides, treatment rates, treatment times, and application techniques provide effective vegetation management given the forest conditions of Nova Scotia. Research has identified effective control rates lower than recommended on labels.

Drainage studies continued with one additional trial established in cooperation with Stora Forest Industries.

Various studies were carried out to determine worker productivity in cleaning, merchantable thinning, shelterwoods, remnant removals, site clearing, and stand conversion operations.

Research continued to emphasize development of effective cultural practices such as fertilizing, shearing, and vegetative management in both natural stands and plantations.

The publication of the Revised Normal Yield Tables for Nova Scotia Softwoods was one of eight Forest Research Reports produced.

FOREST RESOURCES PLANNING AND MENSURATION DIVISION

Forest Inventory

Sound forest management requires constantly updated data collected and maintained through a recurring inventory. Such an inventory commenced in 1964 and is regularly updated. A province-wide system of 1,765 permanent plots of 0.1 acre (0.040 ha) provides data on forest growth and yield. These are measured every five years.

During the spring and summer of 1989, aerial photographs were taken of Shelburne and Yarmouth counties using true colour film.

From April to August a crew of 14 established 2,000 sample plots in over 400 stands in Kings and Annapolis counties. Data on wildlife habitats was gathered concurrently. From August to December the crew did the fourth remeasurement of 400 permanent sample plots.

The data from the new inventory of Annapolis and Kings counties is being compiled and the results of Queens and Lunenburg counties have been compiled and a report is being drafted.

Fifty-three lots or parcels of land totalling 15,092 acres (6 108 ha) were cruised and evaluated for possible trade or purchase by the Crown.

Timber Loan Board

Five applications were received and entailed the locating, field examination, and investigation of physical plants and businesses. These applications came from five different firms for six separate parcels of land covering approximately 3,400 acres.

The board accepted four applications and processed four loans.

Scaling

The annual Timber Scalers school attracted 22 candidates.

Five Community Colleges were granted permission to conduct Timber Scalers Examinations. A total of 49 students wrote the examinations.

The mandatory Scaling Refresher Course was attended by 22 candidates.

The Supervisor of Scaling attended the meeting of the Canadian Standards Association (CSA) Technical Committee Scaling Primary Forest Products in Quebec City. A complete review of the CSA Standard CAN3-0302.1-M86 Scaling Roundwood and CAN3-0302.2-M86 Measurement of Wood Chips, Tree Residues and Byproducts was carried out in order to maintain the publication as a national standard through CSA.

In cooperation with District staff, check scales were carried out on the various Crown Timber Licenses and Agreements.

Assistance was given to Department, companies, and private individuals for various scaling programs, problems, complaints, and disputes.

FOREST PROTECTION DIVISION

The Provincial Forest Fire Control Centre, P.O. Box 130, Shubenacadie, N.S., B0N 2H0 (758-2232), is responsible for the acquisition, distribution and maintenance of fire control equipment, for the motor vehicle fleet, and for heavy equipment. The Centre is also responsible for the operation and maintenance of the Integrated Mobile Radio System servicing user departments and agencies of the government, hospitals, ambulances, fire departments, and the RCMP.

The 1989 fire season was somewhat unusual as there were no fires started prior to April 1st, owing primarily to wet weather. However, during the course of the season 425 fires burned 461.7 ha. The months of April and May saw the most fire starts, and 238 fires (56 per cent of the total) burned 345.8 ha (75 per cent of the total area) during this period.

Precipitation held the fire hazard in the low to moderate range from June through mid-July. High temperatures and low relative humidity quickly dried fuels and by the middle of August the burning conditions were extreme. These conditions justified a ban on open fires starting July 26th, which remained in effect until September 27th. During this extremely dry period, 90 fires occurred with a loss of 81.29 ha. All but one fire were contained on initial attack.

The fire training program for 1988–89 consisted of courses on: maintenance, fire simulator and thermovision, basic fire behaviour and suppression, St. John Ambulance First Aid, and a Radio Course on the Government Integrated Mobile Radio System.

A seminar on the R/EMS computer package was presented for district staff in preparation for implementation.

Considerable areas were safely burned by forest industry and private land owners, utilizing both helitorch and hand ignition methods. The burning was contained to slash piles (haystack) to prepare the sites.

The aircraft used were one Piper Aztec, one Beaver (on floats), four Douglas 500Es, and one Bell 212 helicopter. All five helicopters were equipped with Bambi buckets outfitted with the Instant Deployment System.

The aircraft were used on 53 fires and the helitack crew was employed on 14 fires.

A fire prevention officer was hired in an effort to reduce fire losses by increased public awareness of the danger of wildfire.

Equipment upgrades included conversion to quick connect coupling fire hose in the western half of the province, installation of the R/EMS Fire Weather Index Display System and the purchase of a fire behaviour prediction package.

Fire prevention activities included print and electronic media advertising, displays, and demonstrations featuring aircraft, water bombing and helitack crew at exhibitions and fairs. Fire prevention was promoted with tours of the Fire Centre and Aircraft Services, along with presentations to youth groups.

OPERATIONS BRANCH

The Operations Branch is responsible for a wide range of duties, including operation of district and subdivision offices, provision of staff and equipment for forest fire protection, enforcement of all acts administered by the Department and provision of hunter safety education, operation of provincial parks, provision of technical services for increased forest production on Crown and privately owned lands, implementation of wildlife programs and the maintenance of Subdivision buildings, facilities and vehicles.

The branch comprises four divisions: Operations and Forest Management Private Lands, Forest Management Crown Lands, Enforcement and Hunter Safety, and Forest Resources.

The province is divided into eight geographical subdivisions, each staffed with a resource manager, a Crown lands forester, a private lands forester and, in most cases, a wildlife biologist. Within the subdivisions are districts headed by supervisors and staffed by forest technicians, field clerks, maintenance personnel, and forestry crews.

OPERATIONS FIELD OFFICES

WESTERN
(Yarmouth, Digby, and Shelburne counties)

10 Starr's Road
Provincial Building
Yarmouth, N.S.
B5A 2T1
(742-7846)

P.O. Box 369
Shelburne, N.S.
B0T 1W0
(875-2501)

Hillgrove Depot
P.O. Box 57
Barton, N.S.
B0W 1H0
(245-2164)

Kemptville Depot
Kemptville, N.S.
B0W 1Y0
(761-2227)

SOUTH SHORE
(Queens and Lunenburg counties)

99 High Street
Provincial Building
Bridgewater, N.S.
B4V 1V8
(543-8167)

P.O. Box 190
Milton, N.S.
B0T 1P0
(354-3462)

Chester Grant Depot
Chester, N.S.
(275-3574)

McGowan Lake Depot
Caledonia, N.S.
(242-2550)

Wiles Lake Depot
Bridgewater, N.S.
(543-2394)

VALLEY
(Annapolis and Kings counties)

136 Exhibition Street
Provincial Building
Kentville, N.S.
B4N 4E5
(Operations 679-6097)
(Wildlife 679-6091)

P.O. Box 130
Lawrencetown, N.S.
(584-2229)

SOUTH CENTRAL
(Halifax and Hants counties)

Box 23, Site 2
R.R.#1 Waverley, N.S.
B0N 2S0
(861-2560)

P.O. Box 112
Middle Musquodoboit, N.S.
B0N 1X0
(384-2290)

P.O. Box 190
Musquodoboit Harbour
N.S. B0J 2L0
(889-2332)

P.O. Box 130
Shubenacadie, N.S.
B0N 2H0
(758-3437)

Stanley Hangar
R.R.#1
Scotch Village, N.S.
B0N 2G0
(632-2410)

P.O. Box 190
Windsor, N.S.
B0N 2T0
(798-2016)

Lewis Lake Depot
R.R.#3, Armdale, N.S.
B3L 4J3
(876-2308)

NORTH CENTRAL
(Cumberland and Colchester counties)

626 College Road
Bible Hill, N.S.
B2N 2R2
(893-5620)

P.O. Box 130
Oxford, N.S.
B0M 1P0
(447-2115)

P.O. Box 428
Parrsboro, N.S.
B0M 1S0
(254-3241)

EASTERN
(Pictou, Guysborough, and Antigonish counties)

11 James Street
Provincial Building
Antigonish, N.S.
B2G 1R6
(863-4513)

P.O. Box 50
Guysborough, N.S.
B0H 1N0
(533-3503)

R.R.#2, Aspen
B0H 1E0
(522-2024)

P.O. Box 457
New Glasgow, N.S.
B2H 5E5
(752-3181)

Antigonish Depot
(863-1502)

MacLellan's Brook Depot
(752-5247)

North Riverside Depot
Guysborough, N.S.
(533-3333)

CAPE BRETON NORTH
(Inverness and Victoria counties)

Coxheath Depot
R.R.#6, Sydney, N.S.
B1P 6T2
(563-3371)

P.O. Box 363
Provincial Building
St. Peter's, N.S.
B0E 3B0
(535-2032)

CAPE BRETON SOUTH
(Richmond and Cape Breton counties)

P.O. Box 610
Baddeck, N.S.
B0E 1B0
(295-2554)

P.O. Box 130
Whycocomagh, N.S.
B0E 3M0
(756-2339)

PRIVATE LANDS FOREST MANAGEMENT

Individual Assistance

Forestry consultants and Department staff prepared 353 new forest management plans. This brings the total number of plans to 4,939 with 857,848 acres (347 307 ha) under management.

The amount of assistance paid in 1989–1990 under CAFD was $2,989,230 for silviculture work, $700,310 for services, and $421,410 for management plans. The total assistance paid for forest improvement activities was $4,110,950 under FRDA in 1989–90. Some $1,334,251 in assistance was also paid for silviculture work.

For details on the individual programs, see Tables 8 and 9.

Group Forest Management

The objective of the Group Venture Forest Management Program is to encourage the grouping of small woodlots into larger operating areas and to provide efficient forest management and marketing to the groups' shareholders.

Each group, under the direction of a Board of Directors elected by shareholders, is responsible for preparing management plans, implementing the treatments prescribed in the plans on the ground and selling forest products.

As of March 31, 1990, the 18 groups had 2,125 shareholders with 286,406 acres (115 954 ha) of forest land under management for an average ownership per shareholder of 135 acres (55 ha).

The groups were paid $1,972,124 for operating expenses. They claimed $2,836,882 for silviculture work, $1,295,207 for services, and $378,657 for supervision for a total of $4,510,748 for forest improvement activities. The management fees, which represent 5 per cent of all wood sales (roadside price), paid by the shareholders totalled $210,187 in 1989–1990. For details on the group venture program see Tables 8, 9, and 10.

Large Landowners, Pulp and Paper Companies

Nine large landowners and four pulp and paper companies participated under CAFD. Large landowners claimed $747,974 for 2 342 ha of silviculture work and the pulp and paper companies claimed $748,340 for 11 596 ha of silviculture work. The total value of activities on private lands in 1989–1990 was approximately $11,457,183. See Table 9.

Some $895,310 of planting and $438,941 of stock acquisition were paid under this run out year of FRDA.

CROWN LAND FOREST MANAGEMENT

Pulp and Paper Companies

The department has 50-year license and management agreements (wood supply and forest improvement) with two pulp and paper companies. Each company submits, for prior approval, an annual plan outlining proposed harvesting and silviculture, on the Licensed Crown land. Department staff monitor these operations with field inspections during and after their completion. (See Tables 13 and 16.)

Stora Forest Industries Ltd., Port Hawkesbury

The 50-year license and management agreement with Stora Forest Industries currently includes 1,445,478 acres (599 609 ha) of Crown land with additional areas being added yearly until a total of 1,500,000 acres (607 042 ha) has been placed under agreement with the Company.

Under the Forest Resource Development Agreement (FRDA) and the Cooperation Agreement for Forestry Development (CAFD), funding

was available for silvicultural treatments on these Crown lands. Under a silviculture agreement with the company, the Province returned a stumpage rebate for silviculture work done by the company.

Scott Maritimes Ltd., Abercrombie Point

The 50-year license and management agreement with Scott Maritimes Ltd. includes 203,000 acres (82 153 ha) of Crown land in Halifax County.

Under FRDA and CAFD, funding was available for silviculture treatments on these Crown lands.

Other Wood Processing Facilities

The Department has stumpage agreements with several lumber companies and one hardboard manufacturer, granting the right to harvest specific volumes of wood on designated Crown lands. For details of these companies' harvests, see Table 13.

Unlicensed Crown Lands

Forest improvement activities on these lands, under FRDA and CAFD, included a variety of silviculture treatments as well as the construction and maintenance of silviculture access roads. (See Table 16).

General Letters of Authority and Fuelwood Sales

Authorization was given by letter of authority for the cutting and removal of forest products for personal use, aggregate material, inland deposits, quarried rock and for other approved short-term uses of Crown land. A total of 887 such letters were newly authorized during the fiscal year. Letters of authority resulted in the harvesting of 3,661 cords (113 271 m^3[s]) of fuelwood. An additional 5,693 cords (20 636 m^3[s]) of fuelwood was made available from Crown lands licensed to the forest industries in cooperation with the provincial government.

Timber Licenses — Stumpage Sales and Roadside Sales

Twenty-seven timber licenses, granting short-term cutting rights for the harvest of parcels of forest products from Crown land, along with one license for the roadside sale of forest products, were issued to successful tenderers.

ENFORCEMENT AND HUNTER SAFETY

Hunter Safety Education

Instructors trained	-	Firearm 23, Bow 24
Courses conducted	-	251
Number passed course	-	Firearm 6,433, Bow 791
Hunting Accidents	-	Total Injuries 9, Fatal 2

Workshops and instructor courses were conducted in several areas of the province. The numbers taking courses continue to range around 7,000 annually. Our objectives and goals are to reduce accidents and educate hunters in their responsibility to private land owners.

Law Enforcement

Staff were involved in enforcing the Wildlife Act, Beaches Act, Crown Lands Act, Forests Act, Forest Enhancement Act, Off-Highway Vehicles Act, Provincial Parks Act, Trails Act, and Migratory Birds Convention Act. Assistance was rendered under the Act to Protect Property and the Federal Fisheries Act.

The total number of prosecutions under all acts was 556.

LAND SERVICES BRANCH

The Land Services Branch consists of the Surveys Division, the Land Resources Division, and the Provincial Crown Lands Record Centre.

The Surveys Division is the largest of three divisions with 30 staff members located at the head office in Dartmouth and 51 assigned to ten field offices located throughout the province.

The Division is responsible for the provision of all surveying and mapping services for the Department and also provides surveying services to other government departments and agencies on an as-requested basis.

The Land Resources Division is responsible for the acquisition and disposal of Crown lands administered by the Department. It prepares all legal documentation related to temporary and permanent land transfers.

The Provincial Crown Lands Record Centre coordinates provincial landholdings information for all government departments and agencies, including that for all Crown land records dating back to 1731.

SURVEYS DIVISION

There were 118 miles (190 km) of Crown boundary surveyed requiring the placement of 600 survey monuments. The total area of Crown land surveyed was 20,494 acres (8 292 ha).

Also, 26 miles (42 km) of other boundary was surveyed, requiring the placement of 284 monuments. This work constituted a total of 849 acres (344 ha).

During the period, 473 miles (761 km) of Crown boundary were maintained, requiring the replacement of 950 survey monuments.

Claims and Research Section

Pursuant to the provisions of the Crown Lands Act, the Department dealt with claims for 94 parcels of ungranted land. Approximately 82 were recommended for release and the remainder were considered Crown. Forty-seven certificates, including plan and description, were prepared by the Crown asserting no interest or claim to 13,077 acres (5 292 ha) of ungranted land.

Documentation and mapping was prepared for the turnover of 28,400 acres (11 493 ha) of Crown land to Stora Forest Industries Ltd. pursuant to the provisions of the Nova Scotia Pulp Limited Agreement Act. Total area under license to the Compnay to date is approximately 1,451,936 acres (587 578 ha).

One hundred and forty Orders of Survey were issued during the year to Department and private surveyors.

Approximately 200 toponymy and nomenclature inquiries were received. Eighteen inquiries from the Canadian Permanent Committee on Geographical Names required investigation while 30 names required research and written replies.

Plan Examination Section

The Plan Examination Section is responsible for the inspection and final approval of survey projects carried out by the survey field staff.

The following indicates the number of plans compiled, inspected and finalized during the 1989–90 fiscal year.

Survey Orders (field plots) finalized	228
Condominium plans inspected	17
Section 37(1) grant plans	56
Compiled plans	71
Aquaculture leases inspected	14

Mapping Section

Drafting Assignments

Large scale drafting assignments	25 sheets
Scribing of orthophoto sheets	150 sheets
Orthophoto plotting and data compilation (1:10,000)	82 sheets
Boundaries showing Ecological Reserves & Special Places	As Required
Special Project Drafting	As Required
Revisions of Crown Land Mapping (20 Chain Maps)	645 sheets
Revisions of Crown Land Mapping (1:10,000)	187 sheets
Transferring data to GIS 1:10,000 prep. sheet	100 sheets

Twelve photogrammetry models were compiled for Parks Division and others. Line kilometres of photos flown were 2 860 at a scale of 1:10,000. Some 3,300 aerial photographs were received and checked.

There were 224 reproduction/darkroom work orders requiring the preparation of 1,725 pieces of material.

Staff digitized 118 GIS maps and 157 maps were archived. Some 200 large private ownership maps and 60 small private ownership maps were compiled.

The Air Photo Library handled 1,354 photo requests. The Provincial Map Library processed 4,399 requests and produced 23,489 maps. Total revenue for maps and photos was $43,715.

LAND RESOURCES DIVISION

During the fiscal year, 10 parcels of Crown land were transferred to other provincial departments and to the federal government. Nine grants were issued involving approximately 546 acres (221 ha). Eighteen deeds were issued involving approximately 864 acres (350 ha).

Some 164 letters of authority were prepared for use of Crown land, for a variety of domestic and business purposes, as well as activities on inland and coastal waters. Four licenses were issued for the use of Crown land.

Two areas were declared beaches pursuant to the Beaches Act.

Seven Certificates of Title were issued under the Land Titles Clarification Act.

Forty-five tenders were called during the fiscal year including 16 parcels for stumpage, one parcel for roadside sales, and four parcels for Christmas trees. Twenty-four special tenders were called for canteen concessions, sewage systems, roads and parking lots, site preparation, or the sale of Crown land.

Fifteen timber licenses were issued for cutting Crown land stumpage. Twenty-two special leases involving approximately 513 acres (208 ha) were issued. No campsite leases were issued. Sixty-three trespasses on Crown land were reported.

PROVINCIAL CROWN LANDS RECORD CENTRE

Pertinent information and documents relating to land holdings of 19 government departments and agencies were received by the Centre. Title, legal, and statistical information relating to 32,106 parcels of land was processed and the location and land use of properties have been plotted on resource series and Crown land forestry series maps.

Records of transactions totalling 16,890 images were microfilmed. Documents received from the Registries of Deeds for land acquisitions by all departments totalled 1,100.

Conversion of the mapping base to the Resource Series maps was completed for Yarmouth County.

Approximately 2,200 requests were received, 1,200 of which required searching vault information, and 1,000 required a written reply along with copies of grant information.

Some 73 aquaculture lease requests were researched for the Department of Fisheries and 115 Quieting of Title files were processed for the Department of Attorney General.

The Centre recorded and posted the following documents:

43 rejected petitions; 45 Section 37 certificates; 21 C-files; 37 D-files; 27 leases; seven Quieting of Titles; 57 land purchases; 8 grants; 167 plot plans; seven Certificates of Title and one expropriation. The Centre issued 392 petition numbers.

The Registrar of Land Holdings received 54 Disclosure Statements respecting approximately 3,064 acres (1 240 ha) of land purchased by non-residents . Seventeen per cent of the purchasers were residents of Canada, 11 per cent were residents of Europe or outside of North America, and 72 per cent were residents of the United States of America. Progress continued on a computer liaison with the Department of Municipal Affairs.

TABLE 1
TIMBER PRODUCTS IN NOVA SCOTIA
(Calendar Years 1988 & 1989)

Product	Unit	1988	1989	Increase	Decrease
Lumber, softwood	mfbm	206 593	216 664	10 071	–
Lumber, hardwood	mfbm	9 499	7 864	–	1 635
Pulpwood, softwood	m³(stacked)	4 776 228	4 044 262	–	731 966
Pulpwood, hardwood	m³(stacked)	518 953	451 069	–	67 884
Pulp chips, residue	m³(stacked)	N.A.	298 189	N.A.	N.A.
Railway ties	mfbm	267	183	–	84
Mine packs	mfbm	984	1 832	848	–
Pit props & poles & piling	m³(stacked)	3 043	50 009	46 966	–
Laths	1 000 pieces	4 668	1 925	–	2 743
Shingles	squares	455	262	–	193
Staves & headings	mfbm	126	69	–	57
Boxwood	mfbm	1 981	1 254	–	727

TABLE 2
PROVINCIAL CROWN LAND FOREST PRODUCTION
Calendar Year 1989
(Common Units of Measure)

	SAWLOGS*		PULPWOOD				FUELWOOD				OTHER PRODUCTS**				WHOLE TREE† CHIPS	
	Swd.	Hwd.	Softwood		Hardwood		Softwood		Hardwood		Softwood		Hardwood			
County	mfbm	mfbm	m³S*	cords	m³S*	cords	m³S	cords	m³S	cords	m³s	cords	m³s	cords	Tonnes	Cords
Pictou	568	0	121 088	33.408	18 152	5.008	12	3	6 258	1.727	0	0	0	0	2 105	3.809
Antigonish	0	0	45 943	12.675	1 806	498	0	0	559	154	0	0	0	0	10 298	18.640
Guysborough	994	131	286 242	78.973	34 326	9.470	87	24	2 167	598	0	0	0	0	47 378	85.754
Colchester	2 412	0	43 386	11.970	2 555	705	165	45	5 634	1 554	0	0	0	0	0	0
Cumberland	2 259	0	22 221	6.131	1 069	295	245	68	3 727	1 028	0	0	0	0	0	0
Hants	649	0	3 920	1.082	136	38	20	6	1 447	399	0	0	0	0	0	0
Halifax	5 308	0	54 356	14 997	16 096	4 441	33	9	12 142	3 350	0	0	0	0	0	0
Annapolis	1 869	7	12 979	3.581	12 310	3.396	25	7	323	89	0	0	0	0	0	0
Kings	266	81	2 507	692	12 942	3.571	0	0	149	41	0	0	0	0	0	0
Queens	146	0	1 425	393	4 556	1.257	101	28	1 238	342	0	0	0	0	0	0
Lunenburg	379	2	6 238	1.721	5 740	1.584	411	113	4 093	1.129	0	0	0	0	0	0
Digby	79	97	4 676	1.290	0	0	17	5	2 893	798	0	0	0	0	0	0
Yarmouth	157	6	3 108	857	0	0	40	11	2 189	604	167	46	0	0	0	0
Shelburne	387	1	346	95	0	0	25	7	815	225	20	6	0	0	0	0
Inverness	36	277	41 229	11.375	12 464	3.439	14	4	1 411	389	0	0	0	0	55 215	99.939
Victoria	0	166	47 019	12.972	7 131	1.968	15	4	1 124	310	0	0	0	0	0	0
Cape Breton	0	0	4 218	1.164	2 795	771	20	5	1 413	390	0	0	0	0	0	0
Richmond	0	0	11 787	3.252	896	247	67	19	1 312	362	0	0	0	0	0	0
Total	15 408	788	712 689	196.628	132 974	36.687	1 298	358	48 696	13.490	187	52	0	0	114 996	208.142

*Sawlogs include all products to be sawn
**m³(stacked) based on 8 ft. (2.44 m) bolts
***Products not elsewhere specified converted to m³solid wood
†Whole tree chips are all species and all DBH

TABLE 3
PROVINCIAL CROWN LAND FOREST PRODUCTION
CALENDAR YEAR 1989
(Cubic Feet and Cubic Metres Solid Wood)

	SAWLOGS				PULPWOOD			
COUNTY	Softwood m^3	Softwood cu. ft.	Hardwood m^3	Hardwood cu. ft.	Softwood m^3	Softwood cu. ft.	Hardwood m^3	Hardwood cu. ft.
Pictou	3 775	133,313	0	0	75 680	2,672,616	11 345	400,645
Antigonish	0	0	0	0	28 714	1,014,026	1 129	39,870
Guysborough	5 617	198,363	742	26,203	178 901	6,317,835	21 454	757,642
Colchester	13 627	481,233	0	0	27 116	957,593	1 597	56,397
Cumberland	12 761	450,651	0	0	13 888	490,450	668	23,590
Hants	3 665	129,428	0	0	2 450	86,521	85	3,002
Halifax	29 993	1,059,194	0	0	33 974	1,199,782	10 060	355,266
Annapolis	9 430	333,018	41	1,446	8 112	286,473	7 693	271,676
Kings	1 497	52,866	460	16,245	1 567	55,338	8 089	285,661
Queens	824	29,099	0	0	891	31,465	2 848	100,576
Lunenburg	2 141	75,608	11	388	3 899	137,692	3 588	126,709
Digby	448	15,821	551	19,458	2 923	103,225	0	0
Yarmouth	887	31,324	31	1,095	1 942	68,581	0	0
Shelburne	2 187	77,233	4	141	216	7,628	0	0
Inverness	205	7,239	1 566	55,303	25 768	909,989	7 790	275,101
Victoria	0	0	935	33,019	29 387	1,037,793	4 457	157,398
Cape Breton	0	0	0	0	2 636	93,089	1 747	61,695
Richmond	0	0	0	0	7 367	260,163	560	19,776
TOTAL	87 057	3,074,392	4 340	153,266	445 431	15,730,262	83 109	2,934,969

Conversion Factors: 1 mfbm: 200 cubic feet: 5.663 36 m^3 solid wood equivalent
1 cord 8 foot bolts: 3.624 56 m^3(stacked): 2.208 72 m^3 solid wood
1 m^3 (stacked) x 0.609 375 = 1 m^3 solid wood
1 m^3 = 35.3147 cubic feet

TABLE 3 —Continued
PROVINCIAL CROWNLAND FOREST PRODUCTION
CALENDAR YEAR 1989
(Cubic Metres and Cubic Feet Solid Wood)
OTHER PRODUCTS

	FUELWOOD				OTHER PRODUCTS				TOTAL			
COUNTY	Softwood m³	Softwood cu. ft.	Hardwood m³	Hardwood cu. ft.	Softwood m³	Softwood cu. ft.	Hardwood m³	Hardwood cu. ft.	Softwood m³	Softwood cu. ft.	Hardwood m³	Hardwood cu. ft.
Pictou	7	247	3 567	125 967	0		0	0	79 462	2 806 177	14 912	526 613
Antigonish	0	0	319	11 265	0		0	0	28 714	1 014 027	1 448	51 135
Guysborough	50	1 766	1 235	43 614	0		0	0	184 569	6 517 963	23 430	827 423
Colchester	94	3 319	3 211	113 395	0		0	0	40 837	1 442 146	4 938	169 783
Cumberland	140	4 944	2 125	75 043	0		0	0	26 786	946 010	2 793	98 634
Hants	12	424	825	29 135	0		0	0	6 127	216 373	910	32 136
Halifax	19	671	6 921	244 413	0		0	0	63 986	2 259 646	10 981	599 679
Annapolis	14	494	184	6 498	0		0	0	17 556	619 984	7 919	279 657
Kings	0	0	85	3 002	0		0	0	3 064	108 204	8 534	304 907
Queens	58	2 046	706	24 932	0		0	0	1 772	62 577	3 554	125 508
Lunenburg	234	8 264	2 333	82 389	0		0	0	6 273	221 529	5 932	209 487
Digby	10	353	1 649	58 234	0		0	0	3 381	119 389	2 200	77 692
Yarmouth	23	812	1 248	44 073	102		0	0	2 964	104 319	1 279	45 167
Shelburne	14	494	465	16 421	12		0	0	2 430	85 814	469	16 563
Inverness	8	283	804	28 393	0		0	0	25 981	917 511	10 160	358 797
Victoria	9	318	604	21 330	0		0	0	29 396	1 038 111	6 033	213 054
Cape Breton	11	388	805	28 428	0		0	0	2 647	93 478	2 552	90 123
Richmond	39	1 342	749	26 415	0		0	0	7 405	261 505	1 309	46 192
TOTAL	740	26 133	27 671	984 256	114		0	0	533 342	18 834 813	115 320	4 072 491

Conversion Factors 1 mfbm 200 cubic foot 5.633 35 m³ solid wood equivalent
1 cord 8 foot bolts 3.624 56 m³(stacked) 2.208 72 m³ solid wood
1m³(stacked) x 0.609 375=1 m³ solid wood
1 m³=35 3147 cubic feet

TABLE 4
FURBEARING ANIMALS TAKEN BY FUR HARVESTERS
1981–82 TO 1989–90

	81–82	82–83	83–84	84–85	85–86	86–87	87–88	88–89	89–90
Beaver	3,777	2,541	2,141	3,145	3,864	4,262	6,078	3,510	2,400
Muskrat	48,075	42,807	42,131	41,840	37,976	36,633	37,676	34,042	14,178
Otter	541	417	412	499	516	452	507	317	218
Mink	3,863	3,555	3,066	3,253	2,740	3,033	3,152	2,096	1,445
Lynx	2	3	5	4	0	5	2	1	1
Bobcat	1,592	1,085	1,174	1,118	1,152	1,061	574	697	345
Fox	2,258	2,140	2,027	2,308	2,581	2,203	1,687	1,519	694
Raccoon	9,045	8,308	6,021	7,949	8,404	10,480	8,671	3,065	1,390
Weasel	1,069	1,105	997	1,122	1,010	1,075	682	688	402
Squirrel	1,621	5,016	5,414	10,197	5,192	1,641	1,267	4,188	1,402
Skunk	92	58	100	88	41	37	26	19	18
Fisher	41	23	35	27	38	40	37	6	4
Coyote	20	70	114	164	272	270	360	581	406

NOTES: Bobcat - Snaring season delayed for six weeks each year beginning in 1982 — began Dec. 15
- Bag limited reduced to one in 1987–88 — snaring begins Dec. 1
- Bag limit increased to two in Inverness and Victoria counties in 1988-89

Fisher - Season closed in 1988–89

TABLE 5
CALCULATED KILL FOR UPLAND GAME
HARVESTED BEFORE DECEMBER 16
1985–86 TO 1989–90

	85–86	86–87	87–88	88–89	89–90
Ruffed Grouse	132,423	90,765	78,736	86,610	149,451
Ring-Neck Pheasant	12,669	16,324	9,712	11,720	15,411
Showshoe Hare	206,636	173,857	134,042	149,023	138,400

TABLE 6
LANDS RECONVEYED TO THE CROWN, BY COUNTY 1989–90
(36 reconveyances)

County	Acres	Hectares
Annapolis	0	
Antigonish	69	
Cape Breton	55	
Colchester	103	
Cumberland	0	
Digby	1	
Guysborough	20	
Halifax	588	
Hants	32	
Inverness	534	
Kings	0	
Lunenburg	0	
Pictou	5	
Queens	1	
Richmond	69	
Shelburne	36	
Victoria	1	
Yarmouth	520	
TOTAL	2,034	

TABLE 7
LANDS RECONVEYED TO THE CROWN, BY PURPOSE
1989–90

Purpose	Acres	Hectares
Timber Reserve	1,068	
Recreation & Park Reserve	699	
Right of Way	11	
Historic Site	3	
Environment	3	
Fisherman's Area	1	
Pipeline	1	
Building	8	
Ducks Unlimited	240	
TOTAL	2,034	
Expropriation	1,679	
Transfer of Administration and Control	341	

TABLE 8
MANAGEMENT PLANS STATISTICS
NON-INDUSTRIAL LANDS
(COOPERATION AGREEMENT FOR FORESTRY DEVELOPMENT)
UP TO MARCH 31, 1990

	Share-holders	Active Management Plans	Area under management Hectares	Acres
Antigonish	82	69	3,188	7,874
Athol	124	124	9,992	24,680
Baddeck	217	191	10,262	25,347
Celtic Isle	74	74	4,101	10,129
Coastal	85	85	4,378	10,814
Conform	142	186	12,677	31,312
Denysdale	64	76	4,742	11,713
East Guysborough	62	76	4,108	10,147
Forchu	80	93	4,257	10,515
La Foret	128	161	3,187	7,872
Lunenburg	115	125	5,350	13,215
North Colchester	115	125	5,254	12,977
North Inverness	209	204	9,993	24,683
North Mountain	98	136	5,469	13,508
North Nova	133	114	10,223	25,251
Pictou	158	182	7,356	18,169
Route 223	116	106	5,169	12,767
Sissiboo	123	137	6,248	15,433
Total Groups	2,125	2,264	115,954	286,406
Eastern	N/A	1,006	74,753	184,640
North Central	N/A	722	56,337	139,152
South Central	N/A	577	40,623	100,339
Valley	N/A	502	39,517	97,607
South Shore	N/A	572	39,985	98,763
Western	N/A	463	30,962	76,526
Cape Breton North	N/A	355	21,000	51,870
Cape Breton South	N/A	742	44,110	108,952
Total Subdivisions*	N/A	4,939	347,307	857,848
Grand Total	2,125	7,203	463,261	1,144,255

* The subdivisions have been computerized this year and some have updated their management plans' figures. Consequently, some subdivisions show smaller figures than last year, due to transfers to the group ventures and non-renewal.

TABLE 9
FOREST MANAGEMENT ACTIVITIES ON PRIVATE LANDS (INDIVIDUALS), 1989–90
(COOPERATION AGREEMENT FOR FORESTRY DEVELOPMENT)

	INDIVIDUALS		GROUP VENTURES		LARGE LANDOWNERS		PULP AND PAPER CO.		TOTAL	
	Units	Assistance	Units	Assistance	Units	Assistance	Units	Assistance	Units	Assistance
Planting (ha)-CAFD*	0	$363,203	1 238	$964,528	595	$393,742	2 537	$311,607	4 370	$2,033,080
Planting (ha)-FRDA*	2 211	$1,344,251								
Cleaning (ha)	339	$195,317	319	$229,101	76	$39,610	772	$89,078	1 506	$553,106
Thinning/Shelterwood Conversion (ha)	682	$521,809	527	$417,981	194	$119,578	6	$567	1 409	$1,059,935
Remn. Removal/Salvage/ Site Clearing (ha)	1 349	$412,451	1 451	$431,690	348	$25,879	217	$2,604	3 365	$872,624
Site Preparation (ha)	5 071	$951,004	2 638	$548,390	626	$87,147	4 320	$201,093	12 655	$1,787,634
Weeding (ha)	3 719	$520,135	1 011	$239,705	503	$80,078	3 744	$143,391	8 977	$983,309
Other Silviculture (ha)	89	$31,312	40	$4,408	N/A	$1,940	0	$0	129	$37,660
TOTAL SILVICULTURE	13 460	$4,329,482	7 224	$2,835,803	2 342	$747,974	11,596	$748,340	32 411	$8,661,599
Boundary Lines (km)	258	$101,044	269	$106,045	N/A	N/A	N/A	N/A	527	$207,089
Forest Access Roads (km)	552	$550,043	312	$999,212	N/A	N/A	N/A	N/A	864	$1,549,255
Other Services	N/A	$49,223	N/A	$189,950	N/A	N/A	N/A	N/A	N/A	$239,173
TOTAL SERVICES	810	$700,310	581	$1,295,207	N/A	N/A	N/A	N/A	1 391	$1,995,517
Management Plans (#)	353	$421,410	N/A	N/A	N/A	N/A	N/A	N/A	353	$421,410
Supervision	N/A	N/A	N/A	$378,657	N/A	N/A	N/A	N/A	N/A	$378,657
GRAND TOTAL	N/A	$5,451,202	N/A	$4,509,667	N/A	$747,974	N/A	$748,340	N/A	$11,457,183

*Assistance includes planting and stock acquisition

TABLE 10
GROUP VENTURE ACTIVITIES
(COOPERATION AGREEMENT FOR FORESTRY DEVELOPMENT)
1989

Group Ventures	Silviculture		Services		Forest Improvement Claimed	Volume of Wood Sold		Management Fees	Operating Claim
	Ha	Acres	Km	Miles		m^3	Cords		
Antigonish	109	269	38	24	$112,624	2 438	673	$1,549	$114,926
Athol	780	1,927	39	24	$430,208	33 600	9,274	$17,636	$107,570
Baddeck	513	1,267	38	24	$339,653	18 152	5,010	$11,178	$102,239
Celtic	238	588	23	14	$265,382	5 384	1,486	$2,164	$154,156
Coastal	126	311	20	12	$100,878	14 800	4,085	$9,967	$91,737
Conform	299	739	43	27	$234,296	44 188	12,196	$24,339	$84,260
Denysdale	570	1,408	33	20	$328,087	9 605	2,651	$7,072	$104,175
East Guysborough	370	914	48	30	$207,443	20 169	5,567	$15,121	$101,511
Forchu	276	682	29	18	$172,060	4 459	1,231	$8,334	$120,028
La Foret	70	173	40	25	$98,278	8 902	2,457	$7,914	$92,493
Lunenburg	192	474	29	18	$217,951	13 643	3,765	$10,524	$109,332
North Colchester	359	887	73	45	$300,319	27 000	7,452	$20,368	$113,412
North Inverness	848	2,095	48	30	$478,483	26 048	7,189	$20,271	$171,853
North Mountain	320	780	50	31	$197,040	12 411	3,425	$8,529	$96,037
North Nova	389	983	28	17	$170,951	17 235	4,757	$6,751	$101,659
Pictou	975	2,408	17	11	$335,342	26 429	7,294	$19,047	$108,630
Route 223	603	1,489	19	12	$330,271	11 962	3,302	$8,780	$101,268
Sissiboo	177	437	21	13	$190,401	14 590	4,027	$10,643	$82,765
TOTAL	7 223	17,841	636	395	$4,509,667	311 015	85,840	$210,187	$1,958,051

TABLE 11
CLASSIFICATION OF FIRES BY MONTH OF OCCURRENCE, 1989

Month	No. of Fires	Area Ha.	Area Acres	Percentage Total Fires	Percentage Total Area
January	0	0	0	0	0
February	0	0	0	0	0
March	0	0	0	0	0
April	128	175.69	434.12	30.1	38.05
May	110	170.17	420.48	25.9	36.86
June	18	2.29	5.66	4.2	0.50
July	34	5.92	14.63	8.0	1.28
August	90	81.29	200.86	21.2	17.61
September	28	6.67	16.48	6.6	1.44
October	17	19.67	48.60	4.0	4.26
November	0	0	0	0	0
December	0	0	0	0	0
TOTAL	425	461.70	1,140.8	100.0	100.00

TABLE 12
HUNTING AND NON-HUNTING ACCIDENTS AND RELATED STATISTICS

County	Injury Hunting Accident	Non-Hunting Accident	Total by Fatality	Total
Annapolis	–	–	1	–
Antigonish	2	–	1	3
Cape Breton	–	–	–	–
Cumberland	–	–	–	–
Colchester	–	–	–	–
Digby	1	–	–	1
Guysborough	–	–	–	–
Halifax	–	–	–	–
Hants	1	–	–	1
Inverness	–	–	–	–
Kings	–	–	–	–
Lunenburg	1	–	–	1
Pictou	–	–	–	–
Queens	–	–	–	–
Richmond	–	–	–	–
Shelburne	1	–	–	1
Victoria	–	–	–	–
Yarmouth	1	–	–	1
TOTAL	7	–	2	9

Game Being Hunted	
Deer	4
Rabbits	2
Birds	3

Type of Weapon Involved	
Shotgun	5
Rifle	4

Causes of Accidents	
Shooter stumbled and fell	1
Victim out of sight of shooter	2
Unintentional discharge	2
Victim moved in line of fire	1
Unloading weapon	1
Riding in vehicle with loaded firearm	1

Charges Laid as a Result of Accident	
Criminal Code	3

Hunter Safety Courses

First time firearm hunters	5,274
Other firearm hunters	1,159
Bowhunters	791
TOTAL	7,224

Failures:	
Firearm	294
Bowhunter	-
TOTAL	294

Course Graduates Involved in Accidents

Firearm course	5
Bowhunter course	-
TOTAL	5

Number of Hunters and Fishermen, 1989*

Big game	83,277	Est. rabbit hunters	29,612
Small game	26,349	Bear trapping	409
Moose	200	Furbearers	3,112
Fishing	73,969	Senior citizen, fishing	6,000
Senior citizen, big and small game	10,238		
Bow hunters	1,463		

Game Taken, 1988*

Deer	46,600	Grouse	86,610
Bear	140	Pheasant	11,720
Moose	183	Hungarian Partridge	No Season
Woodcock	3,274	Rabbits	149,234
Snipe	1,320	Furbearers	50,734
Black ducks	44,660	Trout	1,100,156
Sea ducks	23,935	Salmon	8,390
Other ducks	16,216	Geese	9,589

*Licenses, Prosecutions and Game Taken are for previous year as present year's statistics are not available.

GAME LICENSE FEES, 1988

Deer: Resident $20.00, Non-resident $90.00
Senior citizen — free.
Bow season additional fee — Resident $5.00, Non-resident $10.00

Bear: Snaring (residents only) — License $20.00
Hunting license fees — Resident $20.00, Non-resident $90.00

Rabbits: No license required for residents.
Small game license for non-resident $40.00

Moose: Limit 200 licenses — fee $35.00

Pheasant and Grouse: Resident $12.00, Non-resident $40.00
Resident senior citizen — free

Furbearers: Mink, muskrat, otter, beaver, fox, bobcat, weasel, raccoon.
License fee $10.00. Residents Only.

Fish and Migratory Birds:
Regulations and bag limits controlled by federal government.
Provincial salmon license — Resident $15.00, Non-resident $35.00
General Fishing License — Resident $8.00, Non-resident $30.00
Provincial small game license also required.

TABLE 13
PROVINCIAL CROWN AND FOREST PRODUCTION
LICENSE AGREEMENTS, 1988

Company	Annual Allowable Cut Sawn Products bd. ft (m^3)	Annual Allowable Cut Other Products cords (m^3)e	Softwood Sawlogs bd. ft (m^3)	Hardwood Sawlogs bd. ft (m^3)	Softwood Pulpwood cords (m^3)e	Hardwood Pulpwood cords (m^3)e	Hardwood Fuelwood cords (m^3)e	Studwood cords (m^3)e	Softwood Salvage cords (m^3)e	Pulpwood cords (m^3)e	Chips Fuelwood Tons Tonnes
Stora Forest Industries Ltd. P.O. Box 59 Port Hawkesbury, N.S.	– –	330,000 (1 ,36 105)	– –	– –	137,725 (499 182)	20,795 (75 372)	– –	– –	14,480 (52 484)	– –	31,727 (114,996)
Stora - Sales From Crown Land	– –	– –	1,683,900 (9 570)	573,877 (3 242)	342 (1 241)	663 (2 403)	3,274 (11 868)	– –	– –	424 (1 536)	– –
Scott Maritimes Ltd. P.O. Box 5490 New Glasgow, N.S.	– –	50,000 (181 229)	– –	– –	12,090 (43 820)	4,877 (17 678)	– –	– –	– –	– –	– –
Scott - Sales From Crown Land	– –	– –	2,507,679 (14 168)	– –	696 (2 522)	285 (1 035)	2,419 (8 767)	– –	– –	– –	– –
Barrett Lumber* 270 Beaverbrook Crossroad Sackville, N.S.											
Brookfield Lumber Co. Ltd. P.O. Box 36 Brookfield, N.S.	500,000 (2 825)	– –	206,851 (1 169)	– –	172 (623)	3 (11)	– –	– –	– –	– –	– –
C.I.P. Inc. (formerly Consol Inc.) East River Chester, N.S.	– –	25,000 (90 614)	165,945 (936)	2,382 (13)	859 (3 113)	5,359 (19 420)	– –	118 (429)	– –	229 (830)	– –
Elmsdale Lumber Limited P.O. Box 177 Elmsdale, N.S.	1,150,000 (6,497)	– –	2,169,740 (12,259)	– –	– –	– –	– –	– –	– –	– –	– –
E.M. Comeau & Sons (1977) Ltd. 75 Slayter St. Dartmouth, N.S.	289,500 (1 636)	1,839 (6 666)	46,665 (264)	– –	167 (604)	– –	– –	– –	– –	– –	– –

F.W. Taylor Lumber Ltd Chaswood, N.S.	1,000,000 (5 650)	–	328,834 (1 859)	–	1,252 (4 358)	–	188 (691)	–	–	–	–	–
G. Royce Heller Forest Products – RR #3 Lower Sackville Halifax Co., N.S.	1,000,000 (5 650)	–	595,840 (3 368)	–	945 (3 425)	386 (1 400)	–	–	–	–	–	–
Harry Freeman & Sons 75 Slayter St. Dartmouth, N.S.	1,000,000 (5 650)	–	1,328,956 (7 508)	4,074 (23)	2,401 (8 705)	2,008 (7 278)	18 (66)	1 (3)	–	–	–	–
Hoeg Bros. Lumber Ltd RR #2 Southampton Cumberland Co., N.S.	450,000 (2 542)	–	267,163 (1 509)	–	419 (1 518)	–	155 (563)	–	–	–	–	–
Kingston Lumber & Building Supplies Ltd P.O. Box 460 Kingston, N.S.	300,000 (1 695)	–	221,794 (1 253)	–	47 (169)	–	–	–	–	–	–	–
Ledwidge Lumber Co. Enfield, N.S.	1,000,000 (5 650)	–	490,439 (2 771)	–	885 (3 208)	–	375 –	2,215 (1 359)	– (8 027)	–	–	–
Lepper Brook** Town of Truro P.O. Box 427 Truro, N.S.	–	–	–	–	–	–	–	–	–	–	–	–
Lewis Lumber Co. Ltd Weymouth, N.S.	400,000 (2 260)	–	1,938 (11)	97,489 (551)	–	–	297 (1 359)	2,215 (8 027)	–	–	–	–
Mactara Ltd P.O. Box 26	600,000 (3 390)	–	–	–	–	–	–	–	–	–	–	–
Upper Musquodoboit, N.S. Murray Reeves Forestry Ltd P.O. Box 29 – New Ross, N.S.	300,000 (1 695)	–	141,310 (798)	81,402 (460)	344 (1 245)	906 (3 283)	12 (43)	55 (199)	–	63 (227)	–	–
Sproule Lumber Ltd P.O. Box 336	4,500,002 (25 424)	28,725 (104 115)	2,071,040 (11 701)	–	11,278 (40 878)	512 (1 855)	1,145 (4 150)	–	–	–	–	–

* This agreement allows the company to harvest forest products from August 1979, until such time as they have received 742,842 board feet (4 196m³).
** The primary objective of this agreement is to promote high-quality water. The annual cut will be set in accordance with this objective.

TABLE 14
OFFENCES AND CONVICTIONS, 1989

A — Offences known or reported B — Number of persons charged C — Warnings issued

		Crown Lands Act	Forests Act	Wildlife Act	Parks Act	Beaches P&P Act	Off-Hwys Vehicles Act	MBC Act	Totals
C. Breton North	A	11	15	600	2	4	12	1	645
	B	0	1	53	0	0	1	0	55
	C	1	6	201	0	1	14	1	244
C. Breton South	A	6	65	1,124	61	8	5	49	1,318
	B	0	7	38	8	0	3	0	54
	C	1	12	63	0	0	2	0	78
Eastern	A	18	35	415	43	13	0	20	544
	B	2	10	52	14	2	0	3	83
	C	3	10	92	15	2	0	3	125
North Central	A	10	27	403	8	9	4	12	470
	B	0	4	56	0	0	0	0	60
	C	0	2	35	0	1	0	0	38
South Central	A	11	53	623	13	9	5	56	770
	B	1	4	120	3	1	2	27	158
	C	4	22	107	57	0	0	7	197
Valley	A	3	25	391	7	5	1	2	434
	B	0	10	23	4	0	1	0	38
	C	0	16	75	1	0	0	0	94
South Shore	A	6	63	712	6	14	12	45	860
	B	1	5	63	0	1	3	6	79
	C	3	10	83	3	1	12	2	114
Western	A	16	32	336	22	0	19	40	469
	B	0	1	25	0	0	1	1	29
	C	13	2	33	2	0	16	6	74
Total	A	81	315	4,604	161	71	58	225	5,510
	B	4	42	429	29	5	11	37	556
	C	25	82	709	78	5	46	19	964

Jacking	56
Flashing	15
Uncased Rifles	23
No. times decoys used	352
Charges that resulted	94
No. vehicles held for forfeiture	5

TABLE 15
CLASSIFICATION OF FIRES BY CAUSE AND SIZE, 1989

General Cause	No. of Fires	Percentage Total Fires	Area Has.	Area Acres	Percentage Total Area
Forest Industry	15	3.5	27.56	68.1	5.97
Incendiary	116	27.3	189.87	469.2	41.12
Lightning	11	2.6	2.39	5.9	0.52
Misc. Known	31	7.3	13.80	34.1	2.99
Other Industry	19	4.5	56.80	140.4	12.30
Railroad	10	2.3	21.08	52.1	4.57
Recreation	33	7.8	28.88	71.4	6.26
Residential	150	35.3	94.05	232.4	20.37
Unknown	40	9.4	27.27	67.4	5.91
TOTAL	425	100.0	461.70	1,140.8	100.00

TABLE 16
FOREST IMPROVEMENT ACTIVITIES
CROWN LANDS, 1989

Treatment		Stora Forest Industries Ltd.	Scott Maritimes Ltd.	Unlicensed Crown
Site Preparation	Acres	5,530	259	650
	(ha)	(2,239)	(105)	(263)
Burning	Acres		138	79
	(ha)		(56)	(32)
Planting	Acres	7,170	148	494
	(ha)	(2,903)	(60)	(200)
Weeding	Acres	8,462	165	178
	(ha)	(3,426)	(67)	(72)
Cleaning	Acres	2,549	32	2
	(ha)	(1,032)	(13)	(1)
Site Clearing	Acres	1,400		178
	(ha)	(567)		(72)
Conversion Cutting	Acres			62
	(ha)			(25)
Thinning	Acres			94
	(ha)			(38)
Shelterwood	Acres			67
	(ha)			(27)
Access Road				
Road Construction	Miles			1
	(km)			(2)
Road Maintenance	Miles			34
	(km)			(56)

TABLE 17
BLACK DUCK AND CANADA GOOSE MONITORING
HALIFAX COUNTY STUDY UNIT

Survey	Year Mean Up To 1989		1988	1989
B.D. Broods	(12)	37.1	40.0	45.0
B.D. Fall Population	(20)	2,531	3,383	3,351
B.D. Winter Population	(20)	2,288	2,524	600
C.G. Population	(11)	3,490	4,400	5,285

BANDING

During the 1988–89 year 2,074 birds were banded.

	1988–89	1989–90
American Green-winged Teal	115	44
Black Duck	472	544
Mallard Duck	16	99
Black x Mallard Hybrid	270	288
Leach's Storm Petrel	1,173	1,117
Others	7	46